

REMARKS

This responds to the Office Action dated March 8, 2007.

Claim 18 is amended. Claims 1-78 remain pending in this application.

§103 Rejection of the Claims Using Ellinwood and Lopaschuk

Claims 18-23, 26, 36-37, 56-58, 61, 66, 70-71, and 75-78 were rejected under 35 U.S.C.

§ 103(a) as being unpatentable over Ellinwood, Jr. (U.S. Patent No. 4,146,029, herein “Ellinwood”) in view of Lopaschuk et al. (U.S. Patent No. 6,693,133, herein “Lopaschuk”).

Claim 18

Claim 18 has been amended to better describe the recited subject matter.

Applicant respectfully traverses the rejection and submits that the Office Action does not set forth a proper *prima facie* case of obviousness because the cited portions of Ellinwood and Lopaschuk, individually or in combination, do not provide the claimed subject matter. For example, Applicant is unable to find in the cited portions of Ellinwood and Lopaschuk, individually or in combination, among other things, a metabolic sensor processing circuit to determine a cardiac metabolic level from a metabolic signal, and a drug delivery controller to produce a drug delivery signal based on the cardiac metabolic level, as recited in claim 18.

The Office Action states that Ellinwood discloses “an implantable metabolic sensor (60) that can sense pH or glucose among other factors” and “an implantable processor (61; see also 17:13-22)” which inherently “will include circuitry and a controller”. However, Applicant is unable to find in the cited portions of Ellinwood that the alleged “implantable processor” determines a cardiac metabolic level, or that the “pH or glucose among other factors” are sensed from the heart or otherwise indicate the cardiac metabolic level.

The Office Action states that “the device of Ellinwood has particular use in monitoring of cardiac function and delivery of cardiac drugs.” However, Applicant is unable to find Ellinwood and Lopaschuk, individually or in combination, delivery of a cardiac drug based on a metabolic level, much less a cardiac metabolic signal. While the cited portions of Ellinwood relate to drug delivery based on a sensed chemical level, Applicant is unable to find in Ellinwood that the drug delivered based on the sensed chemical level is a cardiac drug.

Additionally, Ellinwood relates to delivery of cardiac drugs using cardiac electric parameters such as QRS width and R-R interval (see, e.g., column 12, line 46 to column 16, line 63). Lopaschuk relates to drug delivery during and following an ischemic event such as a surgical heart procedure (see, e.g., column 1, lines 45-51). These in fact teach away from using a signal indicative of a cardiac metabolic level sensed by an implantable metabolic sensor to control the delivery of the drug as recited in claim 18. Therefore, it is believed that the proposed combination of references is improper.

Applicant respectfully requests reconsideration and allowance of claim 18.

Claims 19-23, 26, and 36-37

Applicant respectfully traverses the rejection. Claims 19-23, 26, and 36-37 are dependent on claim 18, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 18 is incorporated herein to support the patentability of claims 19-23, 26, and 36-37.

Applicant respectfully requests reconsideration and allowance of claims 19-23, 26, and 36-37.

Claim 56

Applicant respectfully traverses the rejection and submits that the Office Action does not set forth a proper *prima facie* case of obviousness because the cited portions of Ellinwood and Lopaschuk, individually or in combination, do not provide the claimed subject matter. For example, Applicant is unable to find in the cited portions of Ellinwood and Lopaschuk, individually or in combination, among other things, determining a cardiac metabolic level based on a metabolic signal using an implantable processor, and producing a drug delivery signal based on the cardiac metabolic level, as recited in claim 56.

Because claim 56 and claim 18 are rejected using the same ground, the discussion above for claim 18 is incorporated herein to support the patentability of claim 56.

Applicant respectfully requests reconsideration and allowance of claim 56.

Claims 57-58, 61, 66, 70-71, and 75-78

Applicant respectfully traverses the rejection. Claims 57-58, 61, 66, 70-71, and 75-78 are dependent on claim 56, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 56 is incorporated herein to support the patentability of claims 57-58, 61, 66, 70-71, and 75-78.

Applicant respectfully requests reconsideration and allowance of claims 57-58, 61, 66, 70-71, and 75-78.

§103 Rejection of the Claims Using Ellinwood and Lopaschuk

Claims 24-25, 27-30, 59-60, and 62-65 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellinwood in view of Lopaschuk.

Applicant respectfully traverses the rejection.

Claims 24-25 and 27-30 are dependent on claim 18, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 18 is incorporated herein to support the patentability of claims 24-25 and 27-30.

Claims 59-60 and 62-65 are dependent on claim 56, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 56 is incorporated herein to support the patentability of claims 59-60 and 62-65.

Applicant respectfully requests reconsideration and allowance of claims 24-25, 27-30, 59-60, and 62-65.

§103 Rejection of the Claims Using Ellinwood, Lopaschuk, and Barrerras

Claim 31 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellinwood in view of Lopaschuk in further view of Barrerras, Sr. et al. (U.S. Patent No. 5,733,313).

Applicant respectfully traverses the rejection. Claim 31 is dependent on claim 18, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 18 is incorporated herein to support the patentability of claim 31.

Applicant respectfully requests reconsideration and allowance of claim 31.

§103 Rejection of the Claims Using Ellinwood and Lopaschuk

Claims 32 and 72 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellinwood in view of Lopaschuk in further view of Soykan et al. (U.S. Patent No. 6,824,561) or Slepian (U.S. Patent No. 6,802,811) or Soykan et al. (U.S. Patent No. 6,206,914).

Applicant respectfully traverses the rejection.

Claim 32 is dependent on claim 18, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 18 is incorporated herein to support the patentability of claim 32.

Claim 72 is dependent on claim 56, which is believed to be allowable for at least the reasons set forth above. Therefore, the discussion above for claim 56 is incorporated herein to support the patentability of claim 72.

Applicant respectfully requests reconsideration and allowance of claims 32 and 72.

Reentry of Withdrawn Claims Requested

Claims 1-17, 33-35, 38-55, 67-69, 73, and 74 were withdrawn from consideration. Applicant believes that at least claim 18 is generic to claims 33-35, and claim 56 is generic to claims 67-69, 73, and 74. In light of what is believed to be allowable as discussed above, Applicant respectfully requests reentry and consideration of at least claims 33-35, 67-69, 73, and 74 in this application.

Title: METHOD AND APPARATUS FOR MODULATING CELLULAR METABOLISM DURING POST-ISCHEMIA OR HEART FAILURE**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6965 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1650, Alexandria, VA 22313-1450 on this 8 day of June 2007.

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Signature

